RCRA FACILITY ASSESSMENT EVALUATION

PRELIMINARY REVIEW AND VISUAL SITE INSPECTION

(NO SAMPLING VISIT)

Region VI, Technical Compliance Section

FACILITY'S NAME(S): Dow Chemical Company

EPA ID NUMBER: TXD000017756

ADDRESS: LaPorte Plant, P.O. Box 685, LaPorte, Texas 77571

LOCATION: 4.5 miles northwest of LaPorte, Texas North of Hwy 225 on St. Hwy. 134. 1 mile south San Jacinto Battleground Park.

SITE DESCRIPTION: 140 Acre Chemical Manufacturing Plant.

DATE OF INSPECTION: 2/12/88 VSI CONDUCTED BY: State of TX

PREPARED BY: H. Corrod DATE PREPARED: 3/18/88

REVIEWED BY: _____ DATE REVIEWED: _____

ANTICIPATED DRAFT PERMIT DATE: _____

FACILITY STATUS: _____

ANY ON-GOING STATE/FED 264, 265, or 270 CORRECTIVE ACTION OR CERCLA ACTION: No

DOES FACILITY HAVE A CERCLA FILE? YES X NO ____

When was the CERCLA SI performed at this facility: 11-7-83

DOES FACILITY HAVE UIC WELL? YES ____ NO X TYPE: _____

TYPE OF DRINKING WATER SUPPLY WITHIN A 3-MILE RADIUS:
Lower Chicot & Evangeline Aquifers 350-600 feet deep.

TARGET POPULATION WITHIN A 3-MILE RADIUS:
No human habitation within 2 miles - 24 hours security. State park 1 mile north
Land use-industrial, commercial, & undeveloped.

RECOMMENDATIONS: ____ S.V. X R.F.I. ____ I.M. ____ No Further Action under RFA

(Indicate only one unless I.M. is marked)

X 3004(u) ____ 3007

Possible Enforcement Action: ____ 3008(a) ____ 3008(h)

Form Rev. 10/13/87
tlc:

I. EVALUATION

A. NUMBER OF SWMU(s)/AOC(s) INVESTIGATED DURING THE PR/VSI: 37

1. NUMBER OF SWMU(s) INVESTIGATED DURING THE PR/VSI: 37

LIST OF SWMU	REGULATED BY RCRA* (SUBTITLE C)	STATUS**
1) Filter Cake Landfarm	N	I
2) PAPI Landfarm	N	I
3) Surface Impoundment	N	Redesignated #13-14
4) Thermal Oxidizer Incinerator	Y	A
5) Waste Treatment Facility	Y	Redesignated #15-23
6) Bulk Storage Area	N	I
7) Drum Storage Yard	Y	A
8) Bulk Storage Compactor Box	N	I
9) Waste Oil Tank	N	A
10) Andco Tank	Y	I
11) Separator System	N	Redesignated #26-27
12) Thermal Oxider Tanks	Y	A
13) West Evaporation Pond	N	C
14) East Evaporation Pond	Y	I
15) Stormwater Retention Basin	Y	I
16) Emergency Retention Basin	Y	I
17) Caustic Retention Basin	Y	I
18) Neutralization Sumps	Y	I
19) Equalization Basin	Y	I
20) Activated Sludge Basin	Y	I
21) Clarifiers	Y	I
22) Sludge Digester	Y	I
23) Sludge Thickner	Y	I
24) Containerized Hazardous Waste Management Facility	Y	A
25) Andco Tank	Y	C
26) API Separator Tank	N	A
27) API Separator Sump	N	A
28) Dilution Pit	N	I
29) Neutralization Sump #1	N	I
30) Neutralization Sump #2	N	I
31) Burn Pit #1	N	I
32) Drum Burial Site	N	I
33) Burn Pit #2	N	I
34) Drum Storage Yard	N	I
35) Burn Pit #3	N	I
36) Chemical Pit	N	I
37) Upjohn Drum Burial Site	N	C

2. AREA OF CONCERN(s): 0

LIST OF AOC

* Y-Yes, N-NO

B. NUMBER SWMU(s) TO BE INCLUDED IN THE RFI: 11
(Except RCRA units subject to Subpart F refer to Section D)

1. NUMBER OF SWMU(s) AT WHICH RELEASES HAVE BEEN IDENTIFIED: 8

LIST OF SWMU	RELEASE TO	NOTED DOCUMENTATION OF RELELASE
1) Drum Storage Yard (07)	Soil/GW	Unit was operative 1973-85 to store steel, fiber and plastic drums containing various hazardous and non-hazardous liquid and solid wastes. Drums were set on wooden pallets over oyster shell base. During a 1984 inspection, drums were uncovered, corroding, and unlabeled. A clean closure was attempted in October 1985, but soil borings showed excessive concentrations of chlorobenzene. Subsequently, drums and shell base were removed.
2) Dilution Pit (28)	Soil/GW	Chlorobenzene, benzene, aniline, and formaldehyde were placed in this surface impoundment from 1957-68. It was an unlined, below-grade, earthen basin. The TWC considers the unit to be part of the Corrective Action GWM in southeast corner of facility to remediate excessive levels of chlorobenzene, aniline and acetone at the +10, -30, and -70 foot sand levels. The pit was backfilled in late 1960s. It was partially reopened in 1985 when it was the location of a receptor trench to recover contaminated ground water at the shallowest level.
3) Neutralization Sump #1 (29)	Soil/GW	This is a "historical" unit that was active from 1957-65 and of similar nature to the Dilution Pit (#28). Significant levels of hazardous constituents have been detected in the groundwater in the vicinity of this unit. It is a part of the current Groundwater Monitoring Program.
4) Neutralization Sump #2 (30)	Soil/GW	Same as Neutralization Sump #1 above.

LIST OF SWMU	RELEASE TO	NOTED DOCUMENTATION OF RELELASE
5) Burn Pit #1 (31)	Soil/GW	Chemical waste was burned in this pit from 1962-64; among them were chlorobenzene, benzene, aniline, and formaldehyde. Before closing the pit with a 6-inch slag cover, two soil borings were taken, one of which tested moderate concentrations of monochlorobenzene (MCB). Subsequently, aniline and MCB were found in Monitor Well #117 from the +10 sand. The geology under this unit contributes greatly to the problem. It is near the Battleground fault which facilitates vertical migration and is underlain by a major crevasse-splay which facilitates horizontal movement. The rate and extent of contamination from this unit should be determined.
6) Drum Storage Yard (34)	Soil/GW	This unit was active from 1967-73 for storage of chemical waste products. It was covered over, and the MDI warehouse built on the site. Two soil borings were taken-one recovered minimal concentrations of benzene, MCB, and aniline, but the other had significant concentrations of MCB and aniline. Also, the field Organic Vapor Analyzer readings were as high as 200 ppm. Since the site is underlain by a shallow crevasse-splay, there is a probable conduit for contaminants to enter the groundwater.
7) Chemical Pit (36)	Soil/GW	In 1975 a chemical disposal pit was dug into a thick, shallow clay area that could have good containment characteristics to limit the potential for groundwater contamination from this site. However, soil borings taken at the time the pit was closed, tested significant concentrations of MCB and aniline. Further definition of the extent of contamination is

LIST OF SWMU	RELEASE TO	NOTED DOCUMENTATION OF RELELASE
8) Upjohn Drum Burial Site (37)	Soil/GW	During the early 1970's, 1700 drums containing phenyl isocyanate, acidic sludge, and other wastes were buried under a 6-foot natural soil cover. A CERCLA site investigation in 1983 confirmed the presence of MCB in the soil and the uppermost (+10) aquifer. Remedial action has been undertaken. Contaminated soil and drums have been removed, site filled and capped and recovery wells drilled to both +10 and -30 foot zones.

2. NUMBER OF SWMU(s) AT WHICH A RELEASE IS HIGHLY POSSIBLE: 1

LIST OF SWMU	MEDIA	RATIONALE
1) Drum Burial Site (32)	Soil/GW	Borings taken east of this abandoned unit showed OVA readings up to 450 ppm but had low concentrations of MCB and aniline. However, the shallow crevasse-splay under this unit is an open pipeline to the shallow aquifers and has probably released chlorobenzene to them.

3. NUMBER OF SWMU(s) WHERE A DETERMINATION OF RELEASE CAN NOT BE MADE DUE TO LACK OF INFORMATION: 2

LIST OF SWMU	RATIONALE
1) Filtercake Landfarm	Diatomaceous earth impregnated with polyglycol was put into this unlined area during the 1970s where it was mixed with sand and plowed in. Upon abandonment it was filled in and grassed over. No soil borings were taken nor groundwater monitoring wells drilled in this area. Definitive data is needed to evaluate the release potential of this landfarm.

LIST OF SWMU	RATIONALE
2) PAPI Landfarm (02)	From 1979-83 in this 3 acre unit polyurea foam was disposed It was unlined and has been abandoned without gathering data through soil borings or groundwater monitoring. Additional data is needed to determine the presence or absence of contamination.

C. NUMBER OF SWMU(s) FOR WHICH AN RFI IS NOT RECOMMENDED: 18

LIST OF SWMU	RATIONALE
1) Surface Impoundment (03)	After 1985 was considered two SWMU's discussed as units 13 & 14.
2) Thermal Oxidizer Incinerator (04)	Unit burns combustible process vent gases and various waste liquids at a 99.99% efficiency. Stack monitors and a good contingency plan to divert vent gases to a caustic scrubber in the event of a shut-down. The air releases are covered by TACB Permit R-6793. Releases to other media have not been reported and are unlikely considering the nature of the unit.
3) Wastewater Treatment Facility (05)	Originally the wastewater treatment was considered one unit. In 1985 it was broken down into its component parts and is discussed as SWMU's 15-23.
4) Bulk Storage Area (06)	One 55-gallon drum of PCB contaminated waste was kept in Maintenance Building. It has a concrete floor and is curbed. No releases have been reported. The drum has been removed.
5) Bulk Storage Compactor Box (08)	A 40-cubic yard compactor box was placed in the Drum Storage Yard (07) to handle Class I, contaminated material. The box has been removed. There was no containment and no known releases. Any possible contamination will be remediated by the work done on the Drum Storage Yard.
6) Waste Oil Tank (09)	No releases have been reported or noted during the VSI from this above ground, carbon steel tank that sits within a diked area on a curbed, concrete pad. The tank has a closed, but vented top. Regular inspections have confirmed the integrity of the tank.

LIST OF SWMU	RATIONALE
7) Andco Tank (10)	Chromate waste was stored in this elevated, carbon steel tank. It is set on a curbed, concrete base and has adequate drainage control systems. The unit is being closed. During the VSI no evidence of spillage, leakage, overflow, corrosion, or deterioration was noted. No earlier releases have been reported.
8) Separator System (11)	Unit has been redesignated as SWMU's 26 & 27.
9) Thermal Oxidizer Tanks (12)	Isocyanate waste and chlorobenzene are stored before incineration. Each tank holds 2800-gallons and is inspected daily for problems in the tank system. The tank is a closed, pressure-vessel with an adequate alarm system and waste-feed cut-offs. No releases have been reported.
10) West Evaporation Pond (13)	Two, unlined surface impoundments were used in 1975-76 to dispose of miscellaneous wastes, including chromium and chlorobenzene. Soil borings taken within the impoundment and monitoring wells on the perimeter indicted no releases had occurred. Due to the short operating life and clean tests no release is likely. It was certified closed in April 1986 by TWC.
11) East Evaporation Pond (14)	From 1976-1985 this 3.5 acre, three million gallon surface impoundment received sludges bearing chromium and chlorinated organics plus other industrial wastes. The pond had a 7-10 foot thick natural clay bottom, 2-foot compacted clay dikes, and maintained a 2-foot freeboard. The unit is being closed under RCRA, and all wastes have been removed. Several soil borings and two groundwater monitoring wells drilled to evaluate the Upjohn Drum Burial Site (SWMU 37) indicated no contamination emanating from this unit.
12) Clarifiers (21)	Two concrete tanks with 1-foot reinforced walls and bottoms hold wastewater with organics and organic compounds. Daily inspections of the tank and piping have shown no problem. The drainage control system and manual waste feed cut-off are adequate. No releases have been noted or reported.

LIST OF SWMU	RATIONALE
13) Containerized Hazardous Waste Management Facility (24)	Daily inspections of this 120'x250' storage pad reduce the potential for undetected spills or leaks from 8600 drums that could be stored here. The unit is fully enclosed with a curbed, reinforced concrete floor that slopes to a collection ditch and sump. Any spill would be easily contained. There have been no evidences of a release.
14) Andco Unit Tank (25)	Chromate bearing sludge was stored in this tank prior to destruction from 1976-85. It was an above ground, carbon steel tank, open top, above ground piping, and a concrete base with 12-inch curbing. The tank is no longer in use and has no history of spills, leaks, or releases.
15) API Separator Tank (26)	Waste oil and wastewater with organics are processed through this tank. It is below ground, uncovered, and made of reinforced concrete. Frequent inspections and an 8-foot freeboard limit releases, although two releases have been reported in the past. Both were properly cleaned up. The VSI indicated no visible contamination.
16) API Separator Sump (27)	The sump is associated with the API Separator Tank (26) and has no history of releases, nor visible evidence of one.
17) Burn Pit #2 (33)	Chlorobenzene, aniline, and benzene were processed from 1969-73 before it was abandoned and a warehouse built over the site. Subsequently two borings were drilled through he foundation. Very low levels of MCB and aniline were found. The field OVA analyses indicated low to non-detectable concentrations. Based on the data available, it is believed that insignificant releases have taken place.
18) Burn Pit #3 (35)	Burn Pit #3 was used for one year and has been inactive since 1973. Two soil borings taken in 1986 showed negligable OVA concentrations and negligable concentrations of MCB and aniline. No significant release has taken place from this unit.

D. SUPPLEMENTAL INFORMATION ON RCRA REGULATED UNITS: R
(Describe any problems identified or suspected from regulated units including identified releases to groundwater)

LIST OF SWMU	CONCERNS
Wastewater Treatment Facility:	
1) Stormwater Retention Basin (15) 2) Emergency Retention Basin (16) 3) Caustic Retention Basin (17) 4) Neutralization Sumps (18) 5) Equalization Basin (19) 6) Activated Sludge Basin (20) 7) Sludge Digester (22) 8) Sludge Thickener (23)	These eight units, along with the Clarifiers make up the Wastewater Treatment Facility that is being replaced by an above ground system of tanks. SWMUs 15, 16, 17 were below grade, unlined earthen impoundments with natural clay bottoms and compacted clay dikes. The other basins have gunite and clay dikes but are otherwise the same. In each case, the waste is being removed and the impoundment closed with clean fill and capped. Each of these units lie in the southeast corner of the facility where groundwater contamination has been recognized and where a Corrective Action Program is in effect. The program consists of soil borings, groundwater monitoring wells, recovery wells, and interceptor trenches. The upper three aquifers @ +10, -30, and -70 feet are contaminated, but the vertical extent of the DCB, aniline, and acetone has not been established. Further monitoring of the deeper aquifers is necessary.

II. FINDINGS

A. RECOMMENDATIONS: (EPA, STATE and/or CONTRACTOR)

1) The State and EPA both recommend that the Corrective Action Program be continued on Units 15-20 and 22-23. In addition, the State recommends continued Corrective Action on SWMU 28 and historical units B and C. The EPA agrees that releases have occurred at these three, designated SWMUs 28-30, and should have a RCRA Facility Investigation (RFI).

2) Both the State and EPA recommend an RFI on Units 01, 02, 07, 31, 32, 34, 36, 37 although the State designates the latter five as D, E, G, I, and Upjohn.

B. ADDITIONAL COMMENTS:

1) From the groundwater contaminant maps, it appears that the HCB plume around the Upjohn Drum Burial Site (37) in the +10 zone is moving off-site to the south. However, the August 1987 CME Report indicates the contaminant concentrations to be decreasing slightly. Recovery wells or a receptor trench would decrease the plume movement.

2) Plumes in the +10, -30, -70 aquifers appear to be going off-site to the east and south of the Wastewater Treatment Facility. The Corrective Action Plan should address this potential problem.

3) The vertical extent of the two known groundwater contamination plumes should be determined. The down thrown side of the Battleground Fault is especially susceptible to the accumulation of HCB and should be addressed.

4) The Clarifiers, especially the larger 450,000 gallon tank, overlie the Battleground Fault. Any significant movement along the fault zone, particularly on the down-thrown side, could damage the integrity of the concrete tank and cause it to leak organics into the already contaminated groundwater.

CONCUR: Bill Luthans DATE: 3/21/88